

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:  
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**PCT**

NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of Mailing  
(day/month/year)

**26 JUL 2009**

Applicant's or agent's file reference

PU030265

**IMPORTANT NOTIFICATION**

International application No.

International filing date (day/month/year)

Priority date (day/month/year)

PCT/US03/29949

25 September 2003 (25.09.2003)

Applicant

THOMSON LICENSING S.A.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US

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Commissioner for Patents  
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KENNETH A. WIEDER

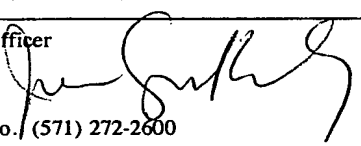
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PU030265	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US03/29949	International filing date (day/month/year) 25 September 2003 (25.09.2003)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC IPC(7): H03K 9/00; H04L 27/06 and US Cl.: 375/316		
Applicant THOMSON LICENSING S.A.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>2</u> sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of report with regard to novelty, inventive step and industrial applicability</p> <p>IV <input checked="" type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>		
Date of submission of the demand 05 April 2004 (05.04.2004)	Date of completion of this report 15 July 2005 (15.07.2005)	
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/ US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Jay Patel  Telephone No. (571) 272-2600	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US03/29949

I. Basis of the report

1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed.
- ☒ the description:  
pages 1-8 \_\_\_\_\_ as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the claims:  
pages 9 and 12 \_\_\_\_\_, as originally filed  
pages 10, 11 \_\_\_\_\_, as amended (together with any statement) under Article 19  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☒ the drawings:  
pages 1-2 \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.
- ☐ the sequence listing part of the description:  
pages NONE \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_.

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages none
- ☒ the claims, Nos. 9-16
- ☒ the drawings, sheets/~~fig~~ none

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☒ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention is accordance with Rules 13.1, 13.2 and 13.3 is

- ☒ complied with.
- ☒ not complied with for the following reasons:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I claim(s) 1-8 and 17-20, drawn to RF circuit that receives, classified in Class 375 subclass 316.

Group II, claim(s) 9-16, drawn to Transceiver, classified in 375 subclass 219.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The receiver circuit in Group I pertains to a receiver whereas the claims in Group II pertains to a transceiver (transmitter and a receiver) with transmit and receive techniques.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
- ☒ the parts relating to claims Nos. 1-8, 17-20

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/US03/29949**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1-7, 17-20</u>	YES
	Claims <u>None</u>	NO
Inventive Step (IS)	Claims <u>8</u>	YES
	Claims <u>None</u>	NO
Industrial Applicability (IA)	Claims <u>1-8, 17-20</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 1-7, 17-20 lack an inventive step under PCT Article 33(3) as being obvious over Mathe et al. Mathe et al discloses (Figures 1, 7, 8), a telecommunications transceiver 170 employing the sample rate converter 10 of FIG. 1 within a sample rate conversion circuit 182 within a digital filter 172, the transceiver 170 includes, the antenna 122, the duplexer 124, an RF-to-IF mixing circuit 174, a delta-sigma analog-to-digital converter (ADC) 176, the digital filter 172, and a baseband processor/demodulator 178 the reference frequency generation circuit 26 is connected to the RF-to-IF mixing circuit 174, the ADC 176, an up-sampler connected in series to a lowpass filter receives the first sample data signal, one type of digital sample rate converter is a direct-form finite impulse response (FIR) filter, the output of which is connected to a down-sampler, the up-sampler interpolates, i.e., up-converts the input sample rate by a factor I, the low-pass filter removes resulting undesirable spectral images and the down-sampler decimates, i.e., down-converts, the resulting interpolated signal by a factor D the up-sampling performed by the up-sampler introduces I-1 zeros between successive samples of the input signal.

Claim 8 lacks an inventive step under PCT Article 33(3) as being obvious over Mathe et al (US Patent 6,347,123) in view of Keevill et al (US Patent 6,359,938). Mathe et al discloses every feature of the claims discussed above but fails to show the FIR filters comprises of an 80 MSps and a 160 MSps. Keevill et al discloses the output data is decimated to 10 megasamples per second ("Msps") because the filter removes any frequencies above 1/4 of the original 20 Msps sampling rate the filter is constructed with approximately 60 taps which are symmetrical about the center, allowing the filter structure to be optimized to reduce the number of multipliers 220, FIG. 19 is a block diagram of one of the low pass filters 156, the other being identical, FIG. 19 shows a representative symmetrical tap 222, and a center tap 224, the required filter response of the low pass filters 156 is shown in FIG. 20 (col. 20, lines 13-46).

----- NEW CITATIONS -----

7. The RF circuit (100) set forth in claim 6, wherein the first filter (106) comprises an 80 MSps FIR filter and the second filter (110) comprises a 160 MSps FIR filter.

5 8. The RF circuit (100) set forth in claim 1, wherein the RF circuit comprises a portion of an orthogonal frequency division multiplexing (OFDM) transceiver (10).

CLAIMS 9-16 CANCELLED

10 17. A method of processing signals, comprising:  
creating a first sample data modulated signal (105) having a first  
frequency and a first sample data clock rate;  
up-sampling the first sample data modulated signal (105) to produce a  
15 second sample data modulated signal (109) having a second  
frequency and a second sample data clock rate; and  
selecting between the first sample data modulated signal (105) and the  
second sample data modulated signal (109); and  
20 delivering one of the first sample data modulated signal (105) and the  
second sample data modulated signal (109) for further processing  
depending on which sample data modulated signal exhibits desirable  
characteristics for a given operating environment.

25 18. The method set forth in claim 17, comprising filtering the first sample data  
modulated signal (105) and the second sample data modulated signal (109) using  
different filtering characteristics.

30 19. The method set forth in claim 17, comprising filtering the first sample data  
modulated signal (105) and the second sample data modulated signal (109) using  
finite impulse response filters (FIRs) (202, 204) having different filtering  
characteristics.

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20. The method set forth in claim 17, wherein the recited acts are performed in the recited order.

AMENDED SHEET